

Elaboration of tubular titania microfiltration membranes for wastewater treatment

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ABSTRACT

Microfiltration (MF) membrane processes have become an established technology in the treatment of wastewater. In this paper, the making of a tubular composite membrane is described; macroporous tubular ceramic supports have been made using the extrusion technique; the MF top layer has been prepared from a titania powder suspension using the slip casting technique. Porosity, average pore size (APS), and pore size distribution of the membranes have been obtained from mercury porosimetry measurements. The morphology, surface quality, and thickness of the top-layer membrane were examined with scanning electron microscopy. The used MF membrane layer has a thickness of 35 μm or so and an APS value of about 0.8 μm . The performance of the MF ceramic membrane was assessed through the evaluation of both water permeability and rejection.

Keywords: Membranes; Average pore size; Porosity; Supports; Wastewater

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